

11. **INTRODUCTION TO SAMPLING—ATTRIBUTES**
Double Sampling—MIL STD 105A. How to use the Tables for single and double sampling.

12. **CONTINUOUS AND SKIP LOT SAMPLING**
When are continuous sampling plans suitable, and how used.

13. **RECAPITULATION—SAMPLING BY ATTRIBUTES**
Dodge Roming Tables—MIL STD 105A—Other Companies' Plans.

14. **PROBABILITY PAPER**
Spread of a product determined graphically. Work Sheets—Probability graph papers.
LECTURER (Lectures 8 to 14):
R. Cardno,
Supervisor—Quality Control,
Canadian General Electric Co. Ltd.

15. **MACHINE AND PROCESS CAPABILITY ANALYSIS**
How is machine capability measured. Relation between machine or process capability and product tolerances.

16. **MACHINE AND OPERATOR CAPABILITY ANALYSIS**
Machine setting and "first part off" control operator capability.

17. **AUDIT INSPECTION**
Random numbers, Receiving Inspection—Vendor Certification.

18. **SAMPLE CORRELATION**
What is Correlation—The scatter diagram—The Correlation chart.

19. **SPECIFICATION AND INSPECTION REQUIREMENTS**
The functions of the inspector in the Q.C. scheme. Engineering Specifications, Tolerances and Allowances, Fits and Limits, Classification of grades of Workmanship, Errors in measurement. Rounding of Dimensions.

LECTURER (Lectures 15 to 19):
S. Brodsky, A.M.I.R.E., P. Eng.,
Canadian General Electric Co. Ltd.

20. **PANEL**
Panel of Lecturers to answer questions by students on course and their own problems.



**UNIVERSITY OF TORONTO
UNIVERSITY EXTENSION**

Session 1959-60

Course in

INTRODUCTION TO QUALITY CONTROL

in co-operation with the
**TORONTO SECTION,
AMERICAN SOCIETY FOR QUALITY CONTROL**

INTRODUCTION TO QUALITY CONTROL

Tuesdays

20 lectures

This course is designed as a "Learning by Doing" course and is designed for those people in industry who are involved in the recording and analysis of the charts and forms which form the basic data of a Q.C. operation. The course makes no claim to teach statistical theory. It is concerned with the statistical methods used to record and control variation in a process and will illustrate the many advantages that Quality Control techniques make possible. Basic Mathematics necessary for the utilization of these methods will be reviewed as required.

It is aimed at getting the rank and file of the Q.C. organization statistically minded, to collect the best data, and to know how to record it.

The material for the course will be culled from forms and charts and procedures used in actual industries. The course is sponsored by the Toronto Section of the American Society for Quality Control.

Minimum requirements—Grade 12 and a familiarity with production and inspections methods in a manufacturing plant or industry.

COURSE CHAIRMAN: W. Foskett.

TIME: 7.30 p.m., Fall term beginning October 6, ending December 8, Winter term beginning January 5, ending March 8.

PLACE: Room 202, Mining Building.

FEE: \$30.00.

Registration

By mail or in person at Room 207, 65 St. George Street, 9 a.m. to 5 p.m., daily except Saturdays. Application forms may be obtained by writing to the Director, University Extension, 65 St. George Street, or by telephoning WA. 3-6611, locals 301, 304, 526, 527. In order to accommodate students and enable them to enrol during the evening, registrations will be taken—

Monday	September 14th
Wednesday	September 16th
Monday	September 21st
Wednesday	September 23rd
Monday	September 28th

from 7.30 to 9 p.m. in the Wallberg Building, corner of St. George and College Streets.

PROGRAMME

1. INTRODUCTION

Brief history of Quality Controls. Types of Inspection Raw Data. Introduction to Statistical Terminology Definitions of Terms used.

2. FREQUENCY DISTRIBUTIONS

Tally Sheet, Frequency Tabulation, Types of Distribution, Statistical Measures.

3. INSPECTION USING MEASUREMENTS

Introduction to Control Charts, Charts for Individual Readings—Band Charts.

4. INSPECTION USING MEASUREMENTS

The Work Sheet, Introduction to Control Charts for Averages and Ranges, Sum and Range Charts, Control Limits and their uses.

5. INSPECTION USING MEASUREMENTS

Control Charts showing Trends. Other Useful Charts and Statistical Measures.

6. MACHINE OR PROCESS CAPABILITY

Definitions, Work Sheets, Relative Precision Index, Tolerances and Allowances.

7. RECAPITULATION — DISTRIBUTIONS AND CONTROL CHARTS

Methods of Keeping Tally Sheets, The Lot Plot and its Interpretation. Useful graphs and Monograms, Warning and Stop notices with Control Charts. Estimation of Machine Setting.

LECTURER (Lectures 1-7):

S. M. Froust, P. Eng.
Senior Member A.S.Q.C.,
Canadian Controllers Ltd.

8. INSPECTION BY GAUGING—ATTRIBUTES

Why gauging is used—Attributes and its definition. Advantages and disadvantages compared to measurements. Fraction Defective Charts (P chart) Single and Two way.

9. INSPECTION BY ATTRIBUTES

Defects per unit—C Chart. Charts with variable sample sizes.

10. INTRODUCTION TO SAMPLING—ATTRIBUTES

Single Sampling—Dodge Romig Tables. A.O.Q.L. A.Q.L. How Sampling works. Rejection and Sorting. Classification of defects.